ABSTRACT

RELEASE TEST OF TRETINOIN AS ANTIAGING IN CONVENTIONAL EMULSION AND NANOEMULSION VEHICLE USING VIRGIN COCONUT OIL

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The aim of this study was to comparised release rate of tretinoin from conventional emulsion and nanoemulsion vehicle using virgin coconut oil as oil phase; Span 80 & Tween 80 as surfactants – 96% ethanol as co-surfactant; and a solution of phosphate buffer pH 6,0±0,5 as water phase (with ratio 1 : 9 : 27,5). Drug release was determined using Franz Diffusion cell with cellophane were used as a membrane and mixed solvent (methanol:phosphate buffer pH 6,0±0,5 = 2:1) as receptor solution for 12 hours. The temperature was controlled at 32ºC ± 0,5ºC. The result of this study were 0,0410 µg/cm^2.min for nanoemulsion and 0,0413 µg/cm^2.min for emulsion, then divided into several stages of time. Early stage was in minutes to 0 up to 5, both of vehicles were released tretinoin with nearly same amount. Next stage was in minutes to 5 up to 60, showed that drug release rate (flux) tretinoin from nanoemulsion higher than emulsion were 0,158 ±0.016 and 0,048 ±0.016 µg/cm^2.min. Next stages was to 60 to 180 minutes, nanoemulsion showed drug release rate lower than emulsion were 0,046 ± 0.005 and 0,090 ± 0.016 µg/cm^2.min. In minutes 180 to 720, both of nanoemulsion and emulsion were had nearly drug release rate were 0,025±0.001 and 0,022±0.002 µg/cm^2.min. Results was statistically using independent sample t-test with degree of confident 95% (α=0,05). There were significant differences of tretinoin release rate.

Keywords : Tretinoin, virgin coconut oil, nanoemulsion, conventional emulsion, drug release